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quickly grew up at such locations as Quijotoa (Covered Wells), Alamo, and San Antone (formerly Weldon, with a population said to have reached 11,000 at one time). One by one the mines were worked out or failed, and although the mining communities were rapidly deserted, the improvements to the water supply enabled Papagos to occupy the locations advantageously wherever elaborate well machinery was not needed. [312] [311]

175 233

After the Civil War, the combination of growing Papago herds and numerous ranches established by white settlers resulted in substantial increase in the stock grazed in the area now included in the Papago Reservation. Papago "depredations" in the 1890's caused some ranchers to abandon the area, their losses being alleged to have been $300,000 in stock and improvements. Lumholtz reported in 1909 that several Papago stock men had herds of about 200 cattle and 50 horses, in excellent condition, in the western slopes of the Baboquivari Range. Nevertheless, Indian cattlemen and farmers were not secure in their land and numerous large tracts were held by non-Indians. [648] [422]

175 657 13 [114]

A complete history of the establishment of the three Papago reservations is provided by a Bureau of Indian Affairs report (1944):

> "The first reservation for the Papago Indians was established at San Xavier on July 1, 1874, and the second at Gila Bend on December 12, 1882.... An Executive Order of June 17, 1909, reduced the size of the Gila Bend Reservation.

Schuchk contains but three permanent co-resident groups. There are no churches. During the school year the cook and maintenance man live here. There is a telephone for general use of the district, and, there is a permanently residing pair of Anglo families. Thus, with its phone, its school, its central location for the district council, Schuchk may be classified as a service center but not a village. 621 361 [365] [62]

Tat Momoli (Jackrabbit) and Shopishk (Sif Oidak District). According to two informants living in Gu Komelik, Tat Momoli contains but three families. There is a church, but no feast house. The entry road is in very poor condition and the Catholic priest seldom visits the village.

Only two people live in Shopishk according to one informant. There is no church and few people visit this place. Nevertheless, a woman lives here who is somewhat famous for her pottery. [323]

In addition to the above settlements, there are about 100 locations which are occupied either permanently or temporarily for a wide variety of purposes. In most instances, they are used by people engaged in stock raising, or in a combination of stock raising and farming who must live more or less permanently near their holdings. It must be recalled that the main Papago Reservation is an area of 4,328 square miles with relatively few miles of improved roads. Some other localities are used temporarily or 361 221 [233] [241]

18: Kelly E-4, 5 (no date) 1963 NU28 Papago NU28

CHAPTER III

RESERVATION ECONOMY

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Stock Raising. From the point of view of natural resources, the main Papago Reservation in its present state of development can be described in two words: cattle range. Approximately 15,000 head of cattle and horses are grazed on the reservation producing an estimated annual gross income of $650,000. [434]

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[114]

The introduction of cattle to the Papago country has been summarized in some detail by Wagoner (History of the Cattle Industry in Southern Arizona, 1540-1940). He points out that Coronado's large herds of cattle and sheep, brought northward in 1540, were steadily reduced in numbers, and it is probable that none of those that escaped or were abandoned on the march survived as the basis for wild herds and flocks in the 16th and 17th Centuries. Nevertheless, before 1700 there were some 100,000 head of cattle in northern Sonora. How far north any of these herds drifted is not known.

The Papago livestock industry really begins with the systematic development of ranching by Father Kino in the 1690's and early 1700's, but numbers seem to have continued

175 small. Most cattle in the 18th and early 19th Centuries were
233 probably semi-wild and formed only a minor part of the subsistence base of the Papago.

175 Soon after the Gadsden Purchase of 1853 non-Indian
233 ranchers began moving into the area of the main reservation,
563 most of which, until 1917, was public domain. There are no accurate figures on the extent of non-Indian ranching during the years prior to 1917. Large ranches, however, were established in various areas of what is now the main reservation and these were later acquired by the federal government for the benefit of the Papago.

175 Cattle ranching by Indians was on a small scale
233 prior to the drilling of the first wells for stock water in
312 the early 1900's. There thus was added to the traditional
361 Papago well settlement (near an assured supply of water for the winter season) and the field settlement (near the floodwater fields used in the summer) a third recognizable type of settlement, the ranch. A. F. Mark has tabulated the number of identifiable Indian ranch locations between 1850 and 1960 (Mark, 1960, Tables 4 and 5). In 1900 there were six such locations. Another 14 were established by 1925, and another 12 by 1960. Because some were abandoned through the years, there were a total of 23 Papago ranch and grazing locations in 1960.

175 These data support the inference that livestock
233 raising began to have substantial economic significance for

the Papago soon after 1900. Unlike other Arizona tribes, 175 233
who acquired cattle in significant numbers only after formal programs for cattle raising had been introduced by the Bureau of Indian Affairs, the Papago created their own livestock economy. Gwyneth Harrington provides a very interesting [114]
account of the process (Harrington, 1938). The incorporation 175 178 233
of cattle raising as a part of Papago native culture, compares with the Navajo sheep raising economy, and accounts for a great deal of the resistance to change on the part of both tribes:

> "In the time which elapsed between the abandonment of Father Kino's missions and the founding of the Papago Indian Reservation in 1917, the Papago had plenty of time, about two hundred years in all, to become accustomed to the use of cattle and horses, adjust themselves to the new occupational elements, and assimilate the industry into the family, social, and economic structure of the tribe at their own tempo, without interference.
>
> "The old hunting range became the cattle range of the Papago settlement. Hunting was not entirely abandoned, and still has some place in the Papago economy; but in the southern districts the economic emphasis shifted early to cattle raising. [224]
>
> "The cattle of all the family were herded together, and the enterprise was conducted under the orders of the family head. The family hunters, usually one or two men to a family, gave place to one or more of the younger men appointed by the patriarchal head of the family as cowboys. These men took care of the cattle, while, as often in the case of hunters, the others did their share of the farming, and provided for their other needs in return for the specialized work of hunting or care of cattle.
>
> "Each village chose a local stockman to direct the village round-ups and cattle sales. His work was voluntary, unpaid, and a position of some prestige, almost equal to that of the Hunt Chief, whose position was falling into disuse." [554] [463]

175
233 The first detailed observations of Papago cattle raising were made by Clotts during his 1914-15 topographic survey of the Papagueria (Clotts, 1915). At each village he attempted to record such details as population, number of houses, acreage in cultivation, amount of livestock, and so on. He reports, however, that his figures on the number of cattle and horses are only estimates, based upon the number given at a few villages and by comparison with other places. He provides a district-by-district report and then gives an estimate for the entire reservation. The latter figure is from twice to three times the district totals.

Table 11. Numbers of Livestock Recorded by Clotts in 1914 at Locations now within the Papago Reservation

[634]

District	Cattle	Horses	Grazing Units*
Baboquivari	2,050	320	2,450
Chukut Kut	2,075	330	2,486
Gu Achi	1,570	270	1,856
Gu Vo	665	88	775
Hickiwan	900	155	1,094
Pisinimo	1,790	220	2,065
Schuk Toak	800	110	937
Sells	1,870	270	2,206
Sif Oidak	2,000	240	2,300
Totals	13,670	2,003	16,169

Having given this information, he then goes on to say that the number of cattle and horses held by the Papago

* Units are calculated on the basis of one unit for cattle and one and a quarter units for horses.

was variously estimated at from 30,000 to 50,000 of the former and 8,000 to 10,000 of the latter. It is possible that the number of cattle sold annually from the reservation influenced Clotts in arriving at these latter estimates. As Gwyneth Harrington learned later, Papago have always been credited with running more cattle than they possessed because of the numbers sold from the reservation. She learned that Mexican cattle were habitually introduced into the United States through the Papago Reservation at market time by Mexican ranchers seeking higher prices for their stock. 175 233 [439]

Clotts' comments on stock raising as observed in 1914 are of sufficient interest to quote in full (Clotts, 1915, pp. 7-8):

> "Husbandry. These Indians own at the present time a very large number of cattle and horses. These are ranged in the valleys as long as the water lasts in the charcos, and are then driven to the mountains and watered at the wells, the water being raised by means of the simple combination of saddle pony, lariat, and rawhide bucket. The Indians are good horsemen and round up and branding time is an important event.
>
> "Grazing. A large number of cattle are sold annually to buyers from Tucson and other points. It is a fairly good cattle country, notwithstanding the lack of a sufficient number of watering places scattered throughout the country. It is variously estimated that there are from 30,000 to 50,000 cattle and 8,000 to 10,000 horses belonging to the Papagos. Among these is a good proportion of very good stock since the introduction a few years ago of a number of thoroughbreds. [439]
>
> "Owing to the hot, dry months of May, June, and sometimes July, when the charcos go dry and the grazing around the mountain wells is reduced to [132]

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an irreducible minimum, cattle are brought to a state bordering on starvation. Sometimes quite a number die. It is at this time that the cattle can be seen eating the choya (cholla) with its protection of numberless spines which attach themselves to the mouth, nose and even ears and must be carried around until brushed off. The choya has considerable water and food value if it could be eaten."

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Clotts' figures not only indicate the intensity of development of stock raising, but, as shown on Map 7, make clear its general distribution on the reservation. There is a conspicuous concentration along the Vamori and Santa Rosa washes, with very little development in the northeast and northwest areas. The map is based on the residence of owners, however, and thus does not show where the cattle are actually grazed. Vamori owners, for example, are known to have had large numbers of cattle in the foothills of the nearby Baboquivari Mountains.

Probably the only reliable estimate of the number of cattle held by the Papago prior to 1950 is given by Gwyneth [422] Harrington for 1937. In that year, with the help of Indian informants, she secured the number of cattle held by owners in each of the villages of the Baboquivari and Chukut Kuk districts. The total for Baboquivari was 5,100 head, and for Chukut Kuk, 5,880, making a total for the two districts of 10,980. Comparing these figures with estimates made by the Bureau of Indian Affairs for the other districts of the reservation she estimated that 44.9 per cent of all Papago

7/1 [see map on p. 98- B1, B2, 7/4 and B3 -- Analyst]

cattle were held in her two districts, and that the total cattle population on the reservation was about 25,000. 175 233 [311]

It is reasonable to assume from this and other evidence that the period of heavy grazing on the reservation was between 1914 and 1937. Drought conditions in the middle 1930's caused many cattle and horses to die on the range and forced Indian owners to sell more than usual numbers. [731] Cattle and horse sales, in fact, more than doubled between 1935 and 1939. It was also during this time that the first serious attempts were made by the Bureau of Indian Affairs to introduce better range management practices and to influence the Indians to run fewer head of cattle of better quality. Pressure to reduce the number of horses, especially horses running wild on the reservation, also had an effect and, in addition, the number of horses was reduced because of a dourine infection which was not brought under control until the late 1940's. 175 233 657 433

The steady reduction in stock numbers was revealed in a ten-year comparison for the period 1949 to 1959 (Metzler, 1960, p. 55). The data also provides information on the size of the Papago ranges and the number of acres available per animal unit. See Table 12. 175 233

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Table 12. Cattle and Horses Grazed on the Papago Reservations, 1949 and 1959 as Reported by the Bureau of Indian Affairs

Reservation and Year	Acres in Range	Total Animal Units	Acres Per Animal Unit
Sells			
1949	2,761,471	21,626	127
1959	2,755,686	17,487	158
San Xavier			
1949	69,232	899	77
1959	69,232	682	101
Gila Bend			
1949	10,172	235	43
1959	10,195	70	145
Totals			
1949	2,840,875	22,760	125
1959	2,835,113	18,239	155

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[422]
[312]

The present distribution of cattle and horses on the reservation shows that livestock ownership is spread much more evenly over the reservation than formerly. A probable explanation for this modified distribution is the far larger number of wells now available, permitting the running of cattle in areas formerly unusable. This is a more advantageous use of the reservation resources, of course, since it permits less intensive grazing of each location and less damage to grass cover. A comparison of the grazing units calculated from Clotts' 1914 data (Table 11)[1] with current figures (Table 12) shows the nature of the change in cattle distribution. There are now increased numbers of

[1] [See p. 72--Ana/ST]

cattle in the Schuk Toak and Hickiwan districts. Other districts, on the whole, are running far fewer numbers of livestock than in 1914. A slight decrease is shown for the number of cattle in the Baboquivari and Chukut Kuk districts between 1914 and 1962 where cattle growers now own about 29 percent of all cattle on the reservation (See Map 7). It will be recalled that growers in these two districts held about 45 percent of all reservation cattle in 1937.

In attempting to summarize the present extent and importance of stock raising on the Papago Reservation, more detailed data are available than for the past, but an accurate count of the numbers of cattle and horses on the reservation is still not available. However, increased cooperation of tribal leaders and the establishment of cattle associations (in San Xavier, Pisinimo, Hickiwan, Gu Achi, Sif Oidak, and Baboquivari districts) is making it possible to obtain increasingly dependable records.

The 1962 record of grazing units, and the "authorized carrying capacity" of the main reservation are shown in Table 13. In regard to capacity of the range, it should be pointed out that this was established in 1944 on the basis of work which was conducted some years earlier.

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Table 13. The Distribution of Stock Units on the Main Reservation in 1962 Compared with the Estimated Carrying Capacity

District	Stock Unit Capacity	Stock Units	Cattle	Horses
Babocuivari	1,780	2,261	1,639	498
Chukut Kuk	1,064	2,440*	1,990	680
Gu Achi	1,000	1,532*	1,000	426
Gu Vo	469	1,085*	610	380
Hickiwan	939	2,062*	1,000	850
Pisinimo	1,003	1,980	1,470	408
Schuk Toak	2,102	1,799*	900	560
Sells	1,067	2,022*	1,210	690
Sif Oidak	880	861	464	318
Totals	10,304	16,070	10,082	4,770

[115] [128] Robert Roether, one of the major cattle buyers on the reservation, is of the opinion that the above estimates are too low for cattle and too high for horses.

233 422 Fully as important as the number of cattle and horses grazed, is their ownership. All cattle on the reservation are owned by Indians and, except for 200 head in a tribal herd, ownership is by individuals and families. [217] No actual records are kept of individual holdings, although the tribal office keeps a record of sales by individuals. The Bureau of Indian Affairs now estimates that at least seven families have from 200 to 600 head of cattle each, that about ten families have 100 to 150 head, and that most families have about ten head or less. The number of individuals and

* Because no livestock count figures are available, these numbers are estimated.

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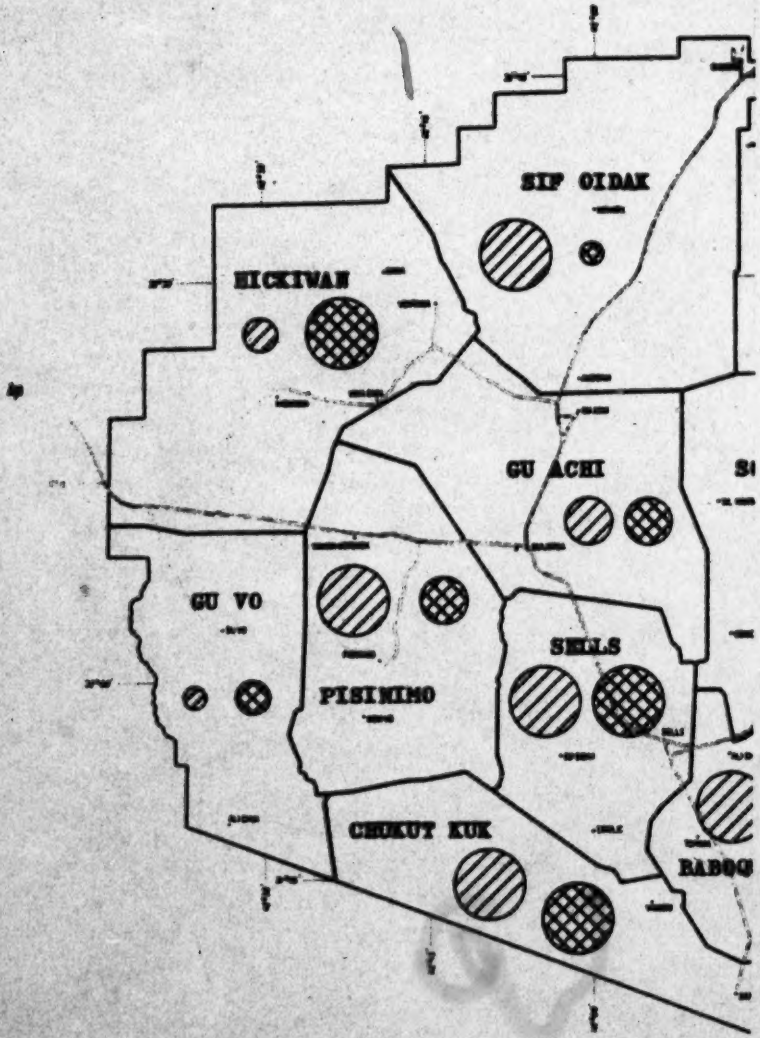

[p. 78-B1]

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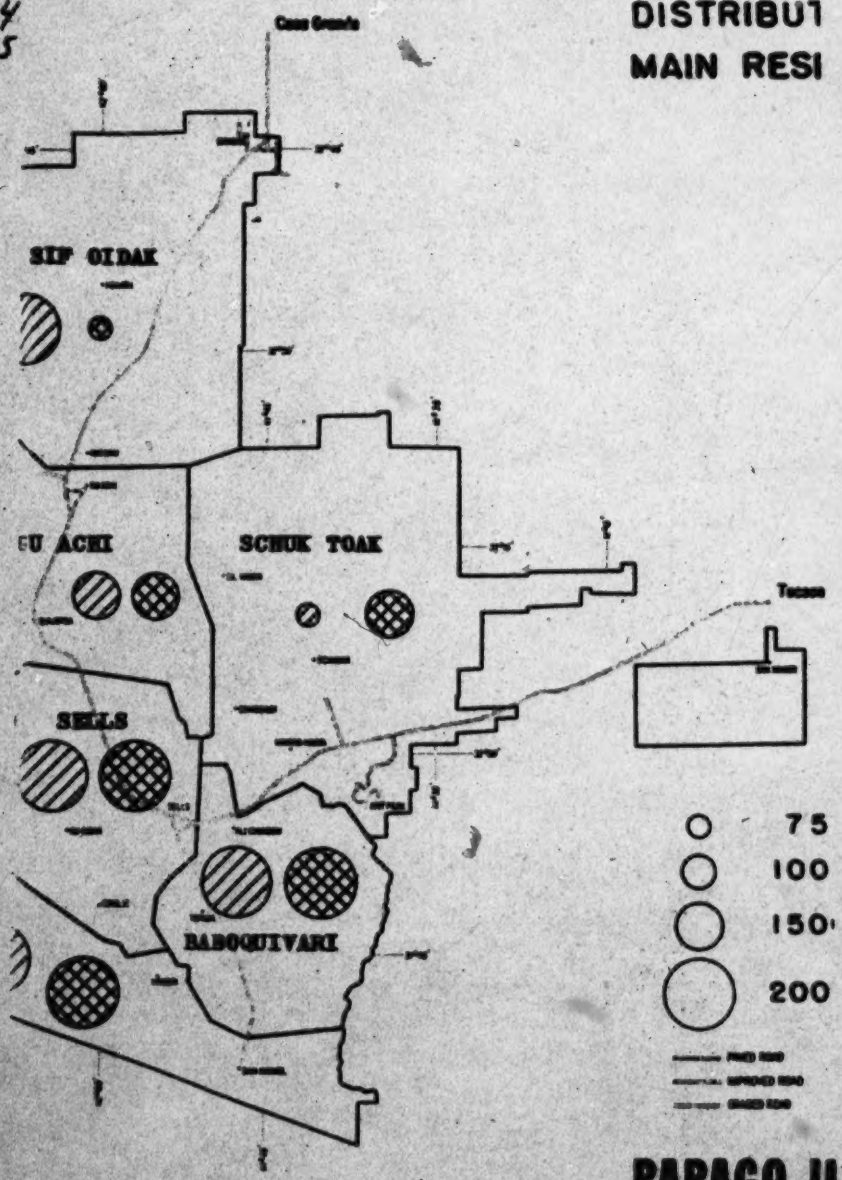

[E-78-B2]

18: Kelly E-4, 5 (no date) 1963 NU28 Papago NU28

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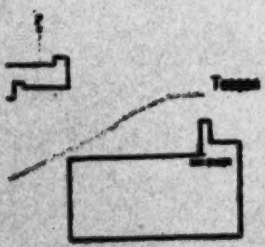
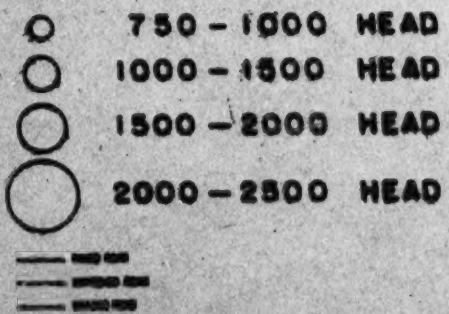
MAP 7
DISTRIBUTION OF LIVESTOCK ON MAIN RESERVATION 1914 & 1962 BY DISTRICTS





PAPAGO INDIAN RESERVATION

[4.78-B3]

families that hold cattle on the three reservations has been estimated at between 400 and 500. Metzler summarizes the economy of stock raising as follows (Metzler, 1959, p. 57):

> "The function of cattle for most families is the same as that of a reserve account in a bank. The cattle are not sold until other sources of income have been exhausted, then enough cattle are marketed to meet cash needs of the family until other sources of income again become available. When they have no more cattle they will start to sell off their horses."

It should be added that cattle raising is more than merely an economic enterprise. The Papago and their cattle may be compared to the Navajo and their sheep. In both cases a way of life has been developed which becomes relatively meaningless without livestock and the work of caring for animals on the open range in isolated desert areas.

The meaning of stock raising in the total economy of Papago family life can be assessed with fair accuracy because of the records that must be kept in connection with the tribal assessment of a 3 per cent tax on the value of all livestock sold from the reservation. In 1962 the tribe collected a total of $19,631.90 in taxes on a gross Indian income of $654,397 from stock sales. For a number of years sales have totalled about this amount, occasionally running higher. Owning from one to ten head of stock, most families have incomes of less than $400 per year from ranching. Probably no more than 40 families, according to Metzler, depend entirely on cattle sales for their yearly income. In keeping

233 433 434 422 with this estimate Robert Roether, reservation cattle buyer, is of the opinion that from 25 to 30 families own more than 100 head of breeding cows. Both of the above estimates are higher than the estimate provided by the Bureau of Indian Affairs.

178 433 Agriculture. Life on the Papago reservations has always depended, and still depends, upon multiple sources of family subsistence and income. The original pattern was a combination of hunting, gathering, and flood water farming. After 1700, hunting and gathering gradually gave way to cattle raising which, in combination with flood water farming, provided subsistence and some cash income. Farming is now declining and there is being established a new combination: cattle raising and wage work.

241 Flood water farming still persists, however, in spite of periodic drought, back-breaking work, and low yields. Wherever it occurs today it is usually an activity [462] [889] [434] [182] of older men who raise a small plot of corn, beans, squash, and sometimes winter wheat, to supplement their income from cattle, thus making it possible to live on the reservation the year around and according to the traditional Papago way of life.

Cash crop or commercial farming, as will be seen later, have not appealed to the Papago since competition from non-Indian farmers and the lack of running water require

433 flooding and grasshoppers is won. This subsistence
24[illegible] scale, risky enterprise cannot long compete against
[467] the surplus-over-subsistence earned in the cotton fields.

The crops Desert People working in the 1950 cotton harvest did plant on the reserves were not even on a subsistence scale. The few beans or squash, the patch of melons they actually planted were no more than a supplement at most.

464 Clearly an important reason Papagos sell their la-
471 bor is that a high proportion do not even have flood
423 farms where they could try to farm if they wished to. Probably nearly half the Desert People picking cotton in 1950 had no fields.[1]

233 For Papagos who cannot farm, there is still a
433 possibility of raising cattle. However, xerophytic
[139] desert vegetation is not particularly well suited to
[132] fattening cattle--thorns don't make fat. Rainfall on reserve lands is very scanty, and good stands of grass are small and undependable.

231 Among Papago cotton pickers of 1950, nearly half
422 the families owned cattle.[2] However, some of them actually had only 1 cow, and the average number of head owned by each family was only a dozen.[3]

One difficulty for Papago cattlemen is that horses are kept by most families, taking up range that could support more beef animals. These horses are not especially good stock--no one raises horses for export.
[492] But the Desert People are still mainly in the pre-
[493] automotive age of transportation. If they don't walk, they generally must ride horseback or in a wagon pulled by horses. Over three-fourths of Papago cotton pickers in 1950 owned horses.[4] And each of these families kept
[621] 6 or 7 horses.[5] If it were not for an ordinance of the
[646] Papago Tribal Council restricting each family to not more than 10 head of horses, horse population of the reserved lands would undoubtedly be much higher.

[1] 39 families gave information. 20 had their own fields, or 51%. (Only 2 were in irrigated projects, 5%) Fathers of 3 younger men had flood fields, 8%. So 41% had no flood fields in their extended family.
[2] 19 families of 40 questions owned cattle, 47½%.
[3] 20 families giving information owned 96 head, averaging 12 per family.
[4] 31 families of 40 questioned owned horses, 77½%.
[5] 21 families giving data owned 138, averaging 6.6 each.

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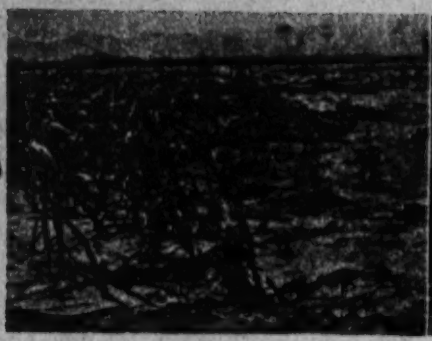
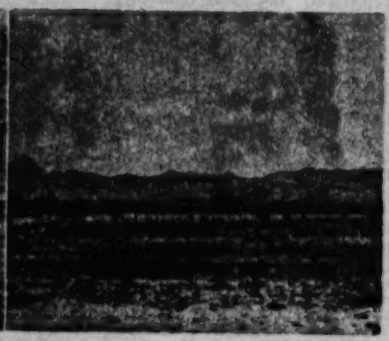


The corn-bean-squash fields are eroding and were always a gamble . . .



wheat stands are thin . . . and often don't ripen . . .

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the crops in heaven . . .

as cattle graze on rocks.